

# *Лікувальна фізична культура, спортивна медицина й фізична реабілітація*

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## **MOVEMENT-RELATED ACTIVITY OF PATIENTS WITH RHEUMATOID ARTHRITIS IN PHYSICAL REHABILITATION**

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### **Abstract**

The article explains the main issues of health and social problems of rheumatoid arthritis. It was established that the urgency of rheumatoid arthritis is caused by progressive disease, severity of the musculoskeletal system.

It is noted that there is a high incidence of lesions of working age in which there are early functional abilities decline, loss of professional and social skills, the difficulties of physical and psychological adjustment of patients to violations of motor functions.

There was accent an attention that the disease causes significant morbidity, decreased quality of life and high economic expenses. According to modern standards of rheumatoid arthritis treatment, the treatment goal is achieving state of prolonged remission, in addition is decreasing of pain in joints, improvement of its movement, improvement the general patient's stage, high temperature decreasing.

There were established that carefully chosen exercises, physical activity and other renewable contribute help to stop further progression of the disease, restoring function of the affected joints and improve physical and mental condition of the patient and their quality of life.

There was proved the necessity to develop a theoretical justification and comprehensive rehabilitation program for early treatment of rheumatoid arthritis, which is aimed to improve the efficiency of rehabilitation, improve ability to work, physical stage and life quality.

**Key words:** rheumatoid arthritis, physical rehabilitation, physical activity.

**Ангела Ногас, Андрій Карпінський. Рухова активність у фізичній реабілітації хворих на ревматоїдний артрит.** У статті висвітлено основні питання медичної та соціальної проблем ревматоїдного артрити. Установлено, що актуальність ревматоїдного артрити зумовлена прогресуючим перебігом захворювання, тяжкістю ураження опорно-рухового апарату.

Відзначено, що спостерігається висока частота ураження осіб працездатного віку, у яких рано виникають зниження функціональних здібностей, утрата професійних і соціальних навичок, труднощі фізичного та психологічного пристосування до порушень рухових функцій.

Акцентовано увагу на тому, що захворювання призводить до значної інвалідизації, зниження якості життя та великих економічних витрат. Згідно із сучасними стандартами лікування ревматоїдного артрити, безпосередньою метою терапії є досягнення стану тривалої ремісії, а також зменшення болю в суглобах, поліпшення їх рухливості, покращення загального стану хворого.

Наведено дані про успішне застосування фізичних вправ у процесі відновного лікування хворих на ревматоїдний артрит. Установлено, що ретельно підібрані фізичні вправи, рухова активність й інші відновлювальні засоби сприяють призупиненню подальшого прогресування захворювання, відновленню функцій уражених суглобів, покращенню фізичного та психічного стану хворого і якості їхнього життя.

Доведена необхідність у розробки й теоретичного обґрунтування комплексної реабілітаційної програми на ранніх стадіях лікування хворих на ревматоїдний артрит, яка буде спрямована на підвищення ефективності відновного лікування, покращення працездатності, фізичного стану та якості їхнього життя.

**Ключові слова:** ревматоїдний артрит, фізична реабілітація, рухова активність.

**Анжела Ногас, Андрей Карпинский. Двигательная активность в физической реабилитации больных ревматоидным артритом.** В статье освещаются основные вопросы по медицинской и социальной проблеме ревматоидного артрита. Установлено, что актуальность ревматоидного артрита обусловлена прогрессирующим течением заболевания, тяжестью поражения опорно-двигательного аппарата.

Отмечается высокая частота поражения лиц трудоспособного возраста, у которых рано возникает снижение функциональных способностей, потеря профессиональных и социальных навыков, трудности физического и психологического приспособления к нарушениям двигательных функций.

Акцентируется внимание на то, что заболевание приводит к значительной инвалидизации, снижению качества жизни и больших экономических затрат. Согласно современным стандартам лечения ревматоидного артрита, непосредственной целью терапии является достижение состояния длительной ремиссии, а также уменьшение боли в суставах, улучшение их подвижности, общего состояния больного.

Приводятся данные об успешном применении физических упражнений в процессе восстановительного лечения больных ревматоидным артритом. Установлено, что тщательно подобранные физические упражнения, двигательная активность и другие восстановительные средства способствуют приостановлению дальнейшего прогрессирования заболевания, восстановлению функций пораженных суставов, улучшению физического и психического состояния больного и качества его жизни.

Доказана необходимость в разработке и теоретическом обосновании комплексной реабилитационной программы на ранних стадиях лечения больных ревматоидным артритом, которая будет направлена на повышение эффективности восстановительного лечения, улучшение работоспособности, физического состояния и качества их жизни.

**Ключевые слова:** ревматоидный артрит, физическая реабилитация, двигательная активность.

**Introduction.** Rheumatoid arthritis is considered as one of the most widely-spread pathologies and the most significant medical and socioeconomic problems of modern society in all the world. Rheumatoid arthritis actuality is conditioned by progressing illness course and wound degree of musculoskeletal system. Especially, high frequency wounding of working age people, who early feel reduction of functional capacities, professional and social skills loss, difficulties of physical and psychological adaptation of patients to malfunction of movement function. This is lead to big invalidization, life quantity decreasing and big economic expenses [4; 5].

Modern methods of complex therapy allow to achieve stable and expressed remission, but at the same time, articulate syndrome has progressive chronical character. In that way rehabilitation measures, directed on saving of functional abilities of wounded joints, pathological process stabilization and improvement of patient's life quality have a big practical meaning [8; 12].

In spite of constant searching of effective medical therapy and rehabilitation of patients with rheumatoid arthritis for many years, today this problem is far from resolving and need searching of new methods for improvement of its effectivity.

Rheumatoid arthritis is characterized by joints deformation, its movement restriction and contracture development (immobilization).

Age peak of disease fall on 50 th (for women at the average – 41 years, for men – 45 years). Women are suffering from rheumatoid arthritis more often in 2–4 times, at the average relation of women and men is 3:1. There is counted beside 118 thousand patients with rheumatoid arthritis in Ukraine, amongst them about 54 thousand is working age persons, who is being under clinic control [11].

50 % of patients have a limited movement diapason in the joints already at the first visiting to a doctor [16]. 60–90 % of patients lose work ability and are needing constant modern medical treatment, do rehabilitation, obligated hospitalization in case of exacerbation, often difficult orthopedic surgicalinterference through 20 years from the start of disease.

The mortality level amongst patients with rheumatoid arthritis at least in two times higher than in general population. This characteristic becoming worse with every year [20].

According to modern ideas, near with medical therapy there is an important role of physical rehabilitation in the system of health renewal patients with rheumatoid arthritis. Carefully chosen physical exercises, treatment massage, physiotherapy, ergotherapy, orthosis and educational programs for patients is

favourto stopping further progression of the disease, renewal of wound joint's function, improvement of physical and psychological state of patients and their life quality [10].

Medical help organization and rehabilitation of patients with rheumatoid arthritis on early stadium is very vital task. When necessity of early medical therapy is confirmed by multiple research and is supported by international clinic recommendations, the question about effectiveness of starting early rehabilitation against rheumatoid arthritis is opened yet, in spite on predictable high rehabilitation potential on this stage of disease [18]. Also, there isn't determined optimal time constraints about starting rehabilitation, using non-medical methods

of treatment (exercise therapy, massage, physiotherapy, ergotherapy, orthosis) and studying patients with rheumatoid arthritis in educational programs [7].

According to modern standards of rheumatoid arthritis treatment, the treatment goal is achieving state of prolonged remission, in addition is decreasing of pain in joints, improvement of its movement, improvement the general patient's stage, high temperature decreasing [19].

For today in the world literature there is no almost any research about effectiveness of non-medical methods and complex rehabilitation programs on early treatment stadium of patients with rheumatoid arthritis. Moreover, there isn't developed standard valuing algorithms of rehabilitation methods, don't determined optimal terms of its using start and its duration. Thus, there is necessary further research about effectiveness of early rehabilitation treatment starting and its influence on further course and consequences of disease.

**The goal of the research.** To study and prove physical exercise specialty in process of physical rehabilitation of patients with rheumatoid arthritis.

**Research methods.** Analysis and synthesis of scientific-methodical and special literature, generalization and systematization the research results.

**Results of the study.** There were achieved big results in rheumatoid arthritis treatment during the last years. Many patients have decreasing of disease activity for help of using the based modern antirheumatic medicine (70 % «answers» according to criteria of American College of Rheumatology) and in whole to improve the disease forecast [4; 6].

However, long-term treatment by medicine is connected with risk of toxic effects development or decreasing of its effectiveness in process of long-term using. All this prove the necessity to develop new approach to resolving of this problem with using methods, which don't have such defects and can intensify effectiveness of main treatment [9].

An important role plays physical, professional and social rehabilitation of patients with rheumatoid arthritis.

Physical rehabilitation of patients with rheumatoid arthritis provides for using the complex renewal methods: exercise therapy, massage, physiotherapy, ergotherapy, psychotherapy, spa treatment, etc. [12].

The main goal of patient's rehabilitation is removing inflammation process; decreasing the pain, constraint and swollen in joints; rising movement diapason, muscles power; prevention of deformation of joints; coordination and walking improvement; tiredness decreasing and improvement of functional status and life quality [7].

E. L. Nasonov think [5] rehabilitation of patient with rheumatoid arthritis need to start on acute phase of disease and in high activity period of rheumatoid process. Types and capacity of necessary rehabilitation methods are determined by character and stage of disease. At the acute phase is used general care, hygienic-dietary regime, breath exercises, treatment by poses. Further, in subacute and chronic phases there is important to prefer methods, which directed on renewing limited functions and professional skills.

According to recommendations B. Dogy et. al. [13] patients with rheumatoid arthritis need to do isometric exercises 5-10 times for day during 6 seconds at the acute phase of disease. The exercises should not exceed 40 % of the maximum voluntary contraction. It helps to maintain muscle tone without exacerbation and prevention of contractures. At the complex treatment of rheumatoid arthritis significant place belongs therapeutic physical culture. Renewing of movement function and prevention in the affected joint and surrounding tissues, usually abnormal, impossible without the use of exercise.

According to S. MaddaliBongi and A. Del Rosso, [15] gymnastics and kinesiotherapy in patients with rheumatoid arthritis, that are determined to strength ligaments and muscles, increase range of motion in joints, slow pathological reactions and improve general physical state must necessarily be included in the complex restorative treatment.

Leading experts recommend using the physical exercises that increase range of motion, muscle strength and aerobic exercises focus, including the individual capabilities of each patient and providing adequate rest [1].

Expediency of physical exercises that increase muscle strength, due to the fact that muscle weakness is observed in approximately 80 % of patients with rheumatoid arthritis. Also in patients with a limited level of physical activity, which is another factor in disease progression [2].

E. V. Orlova [10] developed two sets of exercises for patients with early rheumatoid arthritis (VDT using simulators and therapeutic exercises for the joints). These complexes have shown high clinical efficiency and regular exercise are recommended for inpatient and outpatient after diagnosis. It is shown that VDT at the gym need to differentiate in patients younger (under 40), with a small duration of disease.

In the literature, thoroughly is describes the using of exercise in rheumatoid arthritis following types: static, passive and active through active resistance.

Static exercises are used in the acute phase of arthritis when the patient is in bed, and their aim is to prevent the development of inactive muscle atrophy. They are often aimed to strengthen the sciatic muscles and knee extensors. These exercises are required 6–12 times a day.

Passive exercises are prescribed in the acute stage of the disease and their purpose is to maintain range of motion in the affected joint. These exercises are performed using medical instructor of physical training or relatives of the patient. Passive exercises are required to time when will be reached the maximum amplitude of movement on all axes of motion of joints – several times a day.

Active exercises with the help needed in cases where the patient cannot do them by himself. They are a transition to active exercise without assistance. Active exercises prescribed without much help when the range of motion in joints and muscle strength are sufficient. Active exercises prescribed by the resistance when the improved range of motion [1; 3; 9].

Exercises usually are performed without subjects and with subjects: sticks, jump ropes, pins, balls, balls, cones. In addition, are using gymnastic benches and walls.

There are four types of physical activity for patients with rheumatoid arthritis which are able to reduce pain. Their using can significantly simplify the life of the patient with arthritis, improve general tone of body, improve sleeping. Often patients with arthritis avoid any exercises. They are afraid to aggravate the pain or cause a damage. But if you absolutely avoid physical activity, it can lead to complications such as the development of diabetes.

The researchers recommended four types of exercises that are useful for patients with rheumatoid arthritis:

Stretching exercises help improve the joints, muscles and ligaments. Through stretching exercises reduces the risk of injury, improve limb function.

Muscle-strengthening exercises. They are designed to work out the muscles. Strong muscles improve function of the limbs. For patients with rheumatoid arthritis is recommended to perform a set of 8–10 exercises for the major muscle groups of 2 or 3 times a week.

Aerobic exercises help to engage all the major muscles of the body. With regular doing of aerobic complex by patients with rheumatoid arthritis improves the function of heart and lungs.

Exercise «Get know your body». Its doing improves balance, coordination of movements in patients. Elements of tai chi and yoga, which are a set of «Get know your body» help achieve emotional harmony [2; 3; 8].

For today, one of the largest randomized research (RCTs) evaluating the effect of physical training on the course of rheumatoid arthritis, its effectiveness and safety (registration dynamics of disease activity and radiological signs of degradation estimation method Larsen) is Rheumatoid-Arthritis-Patients-In-Training (RAPIT), conducted Z. DeJond et al. at Leiden University Medical Center in January 1998 and continues to this day. According to results RAPIT prolonged high-intensity aerobic exercises with duration more than 24 months reduces the progression of radiographic signs of joint destruction, improve functional status, aerobic capacity [6; 14].

According to research E. J. Hurkmans et. al. [17] patients with rheumatoid arthritis show high interest in the using of methods of renewal treatment and rehabilitation. It should be noted the readiness and integrity of patients (83 %) of the recommendations a doctor and in some cases, apply remedial treatments alone.

**Conclusions.** Analysis of the literature data and previous clinical research give reason to believe that a violation of physical activity and mobility of patients with rheumatoid arthritis is referred to the main factors limiting normal vital activity and promote progression of the disease. Thereat, a big practical role has a rehabilitation.

Nowadays in Ukraine isn't almost any research of rehabilitation programs on early treatment of rheumatoid arthritis, there is no clear indication as for adequate tools and methods to help in standardizing the amount prescribed rehabilitation measures, there are not defined the optimal time of beginning and duration of its using.

Prospects for further research are extend studying of the effectiveness of early rehabilitation measures, and their impact on the further course and consequences of the disease.

#### *Джерела та література*

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